

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant: Jerry L. Holden
Serial No.: 10/584,033
Filed: 05/01/2007
Group Art Unit: 3725
Examiner: Yusuf, Mohammad I.
Title: INDENTED TUBE FOR A HEAT EXCHANGER

Mail Stop Appeal Brief- Patents
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

APPEAL BRIEF

Dear Sir:

Subsequent to the filing of the Notice of Appeal on December 20, 2011, Appellant hereby submits its brief. The Commissioner is authorized to charge the amount of \$620.00 and any additional fees or credit any overpayment to Deposit Account No. 50-1482, in the name of Carlson, Gaskey & Olds, P.C.

REAL PARTY IN INTEREST

The real party in interest is Cooper-Standard Automotive Inc., the assignee of the entire right and interest in this Application.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

STATUS OF CLAIMS

Claims 1, 2, 5, 7, 9, and 20-23 are pending in this application. Claims 1, 2, 5, 7, 9, and 20-23 stand finally rejected under 102(b). Claims 3, 4-6, 8 and 10-19 have been cancelled. The rejection of claims 1, 2, 5, 7, 9, and 20-23 is being appealed.

STATUS OF AMENDMENTS

All amendments have been entered. Appellant filed an Amendment After Final on October 31, 2012 incorporating the features of claim 5 into claim 1. Claim 7 was also cancelled. This amendment was entered for purposes of appeal.

SUMMARY OF CLAIMED SUBJECT MATTER

Claim 1 relates to a method of forming a tube 12 including the steps of positioning the tube 12 in a first stationary position relative to a mold 22 (page 3, lines 29 to 30), where an entirety of the mold 22 is located outside of the tube 12, and forming an indentation 30 on the tube 12 with the mold 22 (page 3, lines 30 to 31). The method further includes the steps of releasing the mold 22 from the tube 12 (page 3, line 31) and moving the tube 12 to a second stationary position relative to the mold 22 (page 3, lines 31 to 32). The step of forming and releasing occur after the step of positioning the tube 12 in the first stationary position, and the step of moving occurs after the step of releasing, wherein the step of moving includes rotating and axially translating the tube 12 relative to the mold 22 (page 3, line 27 to page 4, line 5).

Claim 20 relates to a method of forming a tube 12 including the steps of positioning the tube 12 in a mold 22 at a first position (page 3, lines 29 to 30), where an entirety of the mold 22 is located outside of the tube 12, and forming an indentation 30 on the tube 12 with the mold 22 (page 3, lines 30 to 31). The method further includes the steps of releasing the mold 22 from the tube 12 (page 3, line 31) and axially translating the tube 12 to a second position relative to the mold 22 subsequent to the step of releasing the mold 22 from the tube 12, where the tube 12 rotates during the step of axially translating (page 3, line 31 to 32). The method includes the step of forming a second indentation 30 on the tube 12 with the mold 22 (page 3, line 27 to page 4, line 5).

Claim 21 relates to a method of forming a tube 12 including the steps of positioning the tube 12 in a mold 22 at a first position (page 5, lines 3 to 4), rolling the tube 12 with a roller in the mold 22 to form an indentation 34 in the tube 12 such that the roller engages the tube 12 (page 5, lines 1 to 7), and axially translating the tube 12 from the first position to a second position relative to the mold 22, where the step of rolling the tube 12 occurs during the step of axially translating the tube 12 such that the roller continually engages the tube 12 during the step of axially translating the tube 12 (page 5, lines 8 to 11). The method includes the step of releasing the mold 22 from the tube 12 after the step of axially translating the tube 12 (page 5, lines 1 to 7).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

- A. Are Claims 1, 2, 5, 7, 9, and 20 properly rejected under 35 U.S.C. 102(b) based on Hull et al. (US 4574610)?
- B. Are Claims 21-23 properly rejected under 35 U.S.C. 102(b) based on Takahashi et al. (US 4715436)?

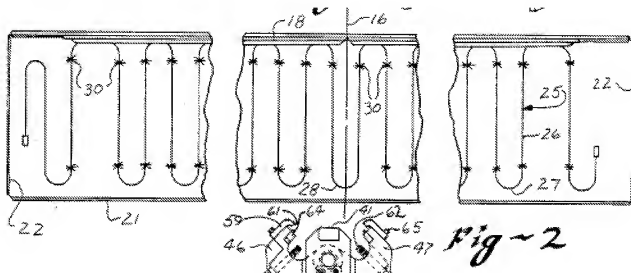
ARGUMENTS

A. Obviousness of Claims 1, 2, 5, 7, 9, and 20 based on Hull et al.

Claims 1, 5 and 7

Claims 1-2, 5, 7, 9 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Hull et al. Hull does not disclose the step of rotating and axially translating a tube relative to a mold. In Hull, a crimper unit 35 includes a plurality of crimper units that crimps a condenser tube 25 to form weld locations 30 on a condenser tube 25 (column 6, lines 18 to 39). As shown in Figure 2, the crimper unit 35 forms a plurality of weld locations 30 near a front flange 18 of a cabinet member 10. The condenser tube 25 then shifts laterally, and then another set of weld locations 30 are formed near the rear flange 21 of the cabinet member 10. The condenser tube 25 only moves laterally from a first position where a first set of weld locations 30 are formed to a second position where a second set of

weld locations 30 are formed. The condenser tube 25 does not rotate during the process of forming the weld locations 30, but is only laterally moved.



In another example, a single crimper unit is employed to form the weld locations 30. The weld locations 30 are created by deforming a circular cross section of the condenser tube 25 to create a projection on the condenser tube 25 that is welded to a metal sheet of a cabinet 10 (column 5, lines 55 to 67). All the weld locations 30 must be located along a common axial location to allow the condenser tube 25 to be welded to the flat metal sheet. That is, all the weld locations 30 are aligned and located on a common side of the condenser tube 25. The condenser tube 25 would therefore not rotate after the first weld location 30 is formed. Instead, the condenser tube 25 and the single crimper unit move axially relative to each other such that another indentation can be then formed that is axially aligned with the first weld location 30. The claims are not anticipated by Hull et al.

Claims 2 and 20

The rejection of claim 2 is separately contested from the rejection of claim 1. The rejection of independent claim 20 is also contested. Claim 2 recites the step of repeating the step of forming the indentation when the tube is in the second stationary position.

As stated above, in the example where a single crimper unit is employed, after a first weld location 30 is formed, either the crimper unit or the condenser tube 25 moves such that a second weld location 30 can be formed. As the purpose of the weld locations 30 are to create a deformed surface for welding to a flat metal sheet, all the weld locations 30 are aligned and located on a common side of the curved condenser tube 25. After the first weld location 30 is formed, movement of the components positions the condenser tube 25 such that a second weld location 30 can be formed which is axially aligned with the first weld location 30. Any rotation would cause the weld locations 30 to be located in an area that would not contact the metal sheet, which is required for welding. Therefore, the condenser tube 25 cannot rotate between the steps of forming the first weld location 30 and the second weld location 30 as the weld locations 30 must be axially aligned to provide a surface for welding to the metal sheet of the cabinet 10.

Claim 9

The rejection of claim 9 is separately contested from the rejection of claim 1. Claim 9 recites the step of rotating includes rotating the tube relative to the mold between approximately 5 to 10° between each of the step of repeating. As stated above, Hull et al. does not disclose the step of rotating the tube relative to the mold, and therefore the condensing tube 25 cannot rotate the claimed degrees.

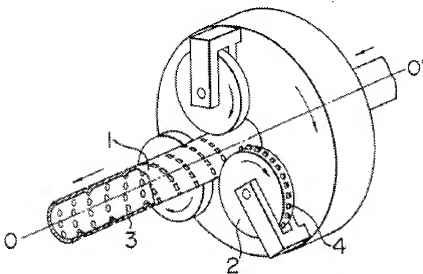
B. Obviousness of Claims 21-23 based on Takahashi et al.

Claims 21 and 22

Claims 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al. (US 4715436). Claim 21 recites the step of axially translating a tube from a first position to a second position relative to a mold, and a step of rolling the tube occurs during the step of axially translating the tube such that the roller continually engages the tube during the step of axially translating the tube.

In Takahashi et al., none of the teeth 4 continually engage the tube 1, as further shown in Figure 1a, below. The Examiner says that the collection of teeth 4 continually engage the tube 1. However, the claim recites a roller, not rollers. None of the individual teeth 4 of Takahashi et al. continually engage the tube 1. Instead, each tooth 4 moves away from the tube 1 after forming a projection 3 on the tube 1. The teeth 4 are part of a rotating disc 2, and each tooth 4 can again engage the tube 1 to create another projection on the tube 1 as the disc 2 rotates. However, none of the individual teeth 4 of Takahashi et al. continually engages the tube 1 as claimed. The claims are not obvious.

FIG. 1a



Claim 23

The rejection of claim 23 is separately contested from the rejection of claim 21. Claim 23 recites the step of rotating includes rotating the tube relative to the mold between approximately 5 to 10° between each of the step of repeating. Takahashi et al. does not disclose rotating the tube 1 the claimed amount.

CONCLUSION

For the reasons set forth above, the rejection of all claims is improper and should be reversed. Appellant respectfully requests such an action.

Respectfully Submitted,

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CLAIM APPENDIX

1. A method of forming a tube, the method comprising the steps of:
positioning the tube in a first stationary position relative to a mold, wherein an entirety of the mold is located outside of the tube;
forming an indentation on the tube with the mold;
releasing the mold from the tube; and
moving the tube to a second stationary position relative to the mold, wherein the step of forming and releasing occur after the step of positioning the tube in the first stationary position, and the step of moving occurs after the step of releasing, wherein the step of moving includes rotating and axially translating the tube relative to the mold.
2. The method as recited in claim 1 further including the step of repeating the step of forming the indentation when the tube is in the second stationary position.
9. The method as recited in claim 1 further including the step of repeating the step of forming the indentation when the tube is in the second stationary position, wherein the step of rotating includes rotating the tube relative to the mold between approximately 5 to 10° between each of the step of repeating.
20. A method of forming a tube, the method comprising the steps of:
positioning the tube in a mold at a first position, wherein an entirety of the mold is located outside of the tube;
forming an indentation on the tube with the mold;
releasing the mold from the tube;
axially translating the tube to a second position relative to the mold subsequent to the step of releasing the mold from the tube, wherein the tube rotates during the step of axially translating; and
forming a second indentation on the tube with the mold.

21. A method of forming a tube, the method comprising the steps of:
- positioning the tube in a mold at a first position;
 - rolling the tube with a roller in the mold to form an indentation in the tube such that the roller engages the tube;
 - axially translating the tube from the first position to a second position relative to the mold, wherein the step of rolling the tube occurs during the step of axially translating the tube such that the roller continually engages the tube during the step of axially translating the tube; and
 - releasing the mold from the tube after the step of axially translating the tube.
22. The method as recited in claim 21 further including the step of rotating the tube, wherein the step of rotating the tube and the step of axially translating the tube occur simultaneously.
23. The method as recited in claim 22 wherein the step of rotating the tube includes rotating the tube between 5 and 10 degrees.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None